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ABSTRACT

This paper critiques a negative 1984 review, "Meditation and Somatic Arousal Reduction" (Holmes), on the absolute effectiveness of meditation in reducing somatic arousal and reviews research on the relative effectiveness of meditation compared to techniques such as biofeedback, hypnosis, progressive muscle relaxation, and autogenics in reducing somatic and cognitive arousal and treating stress-related disorders. Meditation is compared with biofeedback, hypnosis, progressive muscle relaxation, and autogenics as to their possible advantages and indications for treatment as well as to their potential adverse effects and contraindications. Suggestions are made for future research and practice, especially in the areas of examining possible differential effectiveness of these methods for different circumstances, optimizing placebo effects, tailoring to individual proclivities, and combining relaxation techniques with other stress-coping strategies such as communication training. (Author/CG)

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A Comparison of Meditation with Other Relaxation Techniques

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Running Head: A COMPARISON OF MEDITATION

Abstract

Critiques a negative 1984 review on the absolute effectiveness of meditation in reducing somatic arousal and reviews research on the relative effectiveness of meditation compared to techniques such as biofeedback, hypnosis, progressive muscle relaxation, and autogenics in reducing somatic and cognitive arousal and treating stress-related disorders. Like psychotherapy research in general, the most well-controlled studies have not consistently shown differential effectiveness between these techniques nor their greater effectiveness than well-designed placebos. They may, however, at a minimum, differentially facilitate placebo effects for different clients, therapists, and symptoms. Some data suggest that meditation is more useful in reducing cognitive arousal while other relaxation methods are more effective in reducing somatic arousal and that meditation may facilitate an adaptive anticipatory arousal prior to stressful events. Meditation is compared with biofeedback, hypnosis, progressive muscle relaxation, and autogenics as to their possible advantages and indications for treatment as well as to their potential adverse effects and contraindications. Suggestions are made for future research and practice, especially in the areas of examining possible differential effectiveness of these methods for different circumstances, optimizing placebo effects, tailoring to individual proclivities, and combining relaxation techniques with other stress-coping strategies such as communication training.

A Comparison of Meditation with Other Relaxation Techniques

Increasing evidence of the role of stress in perhaps all mental and physical disorders has intensified the search for relaxation skills, both for periodic relief from the hyperaroused "fight or flight" state and for continuous self-regulation of optimal arousal levels in anticipation of, reaction to, and recovery from stressful events. Just as research seemed to be turning from the question of the effectiveness of such techniques to a comparison of their relative effectiveness and the conditions under which one might be preferred over another, an extremely negative review in the widely-read American Psychologist (Holmes, 1984) concluded that meditation is ineffective in reducing somatic arousal. It, therefore, seems necessary to speak to this issue before discussing comparisons of meditation with other relaxation techniques.

The Issue of Absolute Effectiveness

First, Holmes's review excludes own-control designs, most of which have gotten positive results, on the basis of what seems to be a fine semantic point, that the control instruction was to sit quietly rather than to rest. Many of these studies in fact do specify either resting or relaxing and otherwise imply it in the quiet sitting instruction. Secondly, I agree with Holmes that the most well-controlled studies have not found consistent differences between meditating and resting, but a few have found differences. The review itself cites several studies with positive results, for example, an equal number with positive and negative results on

measures of muscle tension, oxygen consumption, and blood flow. Others will be mentioned in this paper. Third, as Eric Popper has argued, the null hypothesis cannot be proved even by the "weight of the evidence." Fourth, for good methodological reasons, Holmes counts only studies of short-term meditation, but he does not then limit his conclusions to short-term meditation. Finally, he states that the personal and professional use of meditation as an antidote for somatic arousal is "clearly" not justified by the existing data. Perhaps not, but the data do indicate it is at least as good as "rest," and it may appeal to some people more than "rest." Certainly, we must be careful not to exaggerate the bit of experimental evidence for it, but such a strong statement might be interpreted to mean that the use of meditation is therefore not justified even on existential grounds. If meditation is not justified, neither is any psychotherapy since it, too, has not consistently been shown to be more effective than well-designed placebos.

Fortunately, the same issue of the American Psychologist that carried Holmes's review also published an excellent article on the placebo (Critelli & Neumann, 1984). It argues against the nuisance, inert, nonspecific, and unspecified connotations and for a "common factors" interpretation of the placebo. As Frank (1961) and Shapiro (1971) have long argued and as the review of therapy-outcome research by Luborsky, Singer, & Luborsky (1975) concludes, existing therapies consistently show about the same level of effectiveness.

The placebo common factors such as therapist attention and modeling, client commitment, and client and therapist expectancy of change may be the only active ingredients or at least such major ones that any incremental effectiveness of specific techniques beyond this placebo is difficult to demonstrate. (Interestingly, therapist attention and both therapist and client expectancy might be loosely translated as old-fashioned love and faith respectively.)

I have thus revealed my main thesis and conclusion for comparing meditation with other so-called relaxation techniques. In general, differences in their effectiveness have not been consistently demonstrated; but they may, at a minimum, differentially facilitate placebo effects for different therapists, clients, target symptoms, and other conditions.

The Issue of Relative Effectiveness

Shapiro's (1982) review of self-control strategies concludes that meditation, biofeedback, hypnosis, and progressive muscle relaxation (PMR) do not differ significantly in their effectiveness in reducing somatic arousal nor in treating clinical problems. A study he omitted by Raskin, Bali, and Peeke (1980) treated anxiety neurotics with meditation, PMR, or frontalis electromyographic (EMG) biofeedback combined with home practice of PMR using an admirably long six-week baseline, six-week treatment, six-week observation, and average of nine-month follow-up. Although forty percent significantly decreased anxiety, no significant differences were found between treatments in efficacy, onset of symptom amelioration,

nor maintanence of therapeutic gains.

In the area of hypertension, Seer's (1979) review of treatment by meditation, PMR, and biofeedback was inconclusive. A more recent review by Stainbrook, Hoffman, and Benson (1983), however, concluded that there is more support for meditation and PMR than for biofeedback or psychotherapy for hypertension, both as to amount and durability of outcome. Hafner (1982) found no significant difference in meditation and meditation plus either EMG or electrical skin resistance biofeedback in treating hypertension. The combined approach, however, decreased diastolic blood pressure and heart rate earlier in the sessions, while the decline for meditation by itself was more gradual.

In a well-controlled study omitted by Holmes's review discussed at the beginning of this paper, Credidio (1982) compared Clinically Standardized Meditation (CSM), patterned biofeedback for decreasing frontalis EMG and increasing peripheral skin temperature combined with a home relaxation tape, and a placebo of relaxing via quiet, eyes-closed sitting (SIT). Although skin temperatures did not differ, CSM lowered frontalis EMG significantly more than SIT, with the biofeedback results falling between these two. The simultaneous biofeedback patterning was apparently quite difficult.

Davidson and Schwartz (1976) contended that PMR is a more somatically oriented relaxation method and meditation more cognitively oriented. Lehrer, Schoicket, Carrington, and Woolfolk (1980) tested this distinction by comparing CSM, PMR, and SIT on a

stress test (five loud tones) rather than simply taking resting measures. Electrical skin responses did not differ across groups, but CSM showed a higher heart rate and frontalis EMG than did PMR in anticipation of tones but greater heart rate deceleration thereafter. This supported Goleman and Schwartz's oft-quoted study (1976) which also reported evidence of more physiological arousal in anticipation of stress and greater recovery after stress for long-term meditators than novices, and to some extent, for a meditation versus nonmeditation condition. (Lehrer and co-workers also corrected for one of Holmes's criticisms of Goleman and Schwartz's study by using analysis of covariance to control for different initial levels between groups.) Both of these studies have interpreted the meditators' anticipatory arousal as an adaptive vigilence set for coping with stress. Lehrer and co-workers also found less cognitive anxiety and more frontal alpha but more EMG tension in meditators than in PMR or SIT groups, thus supporting the somatic-cognitive distinction in these methods to some extent.

Bradley and McCanne (1981) manipulated expectancy of improvement, used the same workshop accident stress film that Goleman and Schwartz did, and compared meditation, PMR, and SIT. They failed to have the control group practice at home, however. There were no significant differences between groups in skin conductance nor anxiety, but the PMR positive expectancy group had lowered heart rate prior to the film while the meditation positive expectancy group had lowered heart rate during the film, somewhat

consistent with Lehrer and co-workers' and Goleman and Schwartz's studies and underscoring my emphasis on placebo factors.

In an interesting series of four experiments, Cuthbert, Kristeller, Simons, Hodes, and Lang (1981) first found that neither heart rate nor EMG feedback were more effective in reducing heart rate and general arousal than a pseudo-biofeedback control with general knowledge of results provided after each transfer trial by a scoreboard display of average heart rate and heart rate change. In their second experiment, meditation was more effective in lowering heart rate and general arousal than was heart rate biofeedback. An attempt to replicate this failed, and subsequent analysis led them to suspect that the quality of the subject-experimenter relationship (active-supportive versus formal-distant) accounted for the different outcomes. The fourth experiment supported this but with an interactive effect. Under scoreboard conditions and high subject-experimenter involvement, meditation was again more effective than biofeedback, but there was no significant difference with low involvement. Without the scoreboard, meditation was more effective than biofeedback with low involvement, and the treatments did not differ significantly with high involvement. The interaction was not easily explained, but the lesser effectiveness of biofeedback in these experiments was interpreted in terms of greater arousal from the cognitive load of attending to the biofeedback and consciously attempting to change physiology. Most interesting, however, was the demonstration of the importance of the quality of

the relationship, which brings us back again to the importance of common factors in the so-called placebo effect.

Advantages and Indications

Comparing some of the advantages and indications for the different relaxation methods, perhaps most obvious is that meditation, PMR, hypnosis, and autogenic training do not require expensive equipment. They can thus be practiced anywhere and taught more cost-effectively in a group setting than biofeedback.

Meditation, self-hypnosis, and the other methods are less other-dependent than hypnosis and might develop more internal locus of control. Hypnosis might be the treatment of choice initially, however for clients with a more external locus of control.

Carrington (1977) has argued that meditation is not goal-oriented, at least in the same way, that the other methods are and thus may have more generalized effects. Luthe (1983) of autogenic fame has argued vehemently against the imposition of thoughts and goals as in hypnosis and for the greater benefit and safety of allowing whatever comes to the awareness of the autogenic trainee to emerge. Meditation also seems to have this self-regulating advantage.

As mentioned previously, meditation may be more effective in reducing cognitive arousal but PMR, autogenics, and biofeedback moreso for somatic arousal. Hypnosis seems useful for both. Meditation more often includes instructions for dealing in a passive, permissive way with intruding thoughts, images, and

sensations that occur in a state of deep relaxation than do the other methods. This could partly explain any greater cognitive benefits it provides. It may also give rise to more insights into feelings and the unconscious than the more preoccupied, goal-oriented methods.

Carrington (1977) reports more drop-outs from biofeedback and PMR than from meditation. For some, these methods and autogenics may be more boring than meditation and result in less compliance. The relatively quick and measurable results with biofeedback (Hafner, 1982) may motivate compliance initially; but, as Stainbrook et al. (1983) concluded, biofeedback's effects may be less durable than the instrument-free methods and require booster sessions.

Adverse Effects and Contraindications

Turning now to adverse effects and contraindications, biofeedback's performance criteria may make it contraindicated for high performance anxiety clients. Meditation may be contraindicated for psychotic and borderline patients unless adequate supervision is provided. It may also be contraindicated for depressives and hyperactive children, both of whom may need arousal level activated instead, unless other techniques such as vigorous exercise are added. Otis (1983) reported increased adverse effects such as anxiety, boredom, confusion, and withdrawal in longer-term Transcendental Meditators, but other selection factors may be operating in this population. Some people may be attracted to meditation as a cognitive avoidance or social withdrawal strategy.

It may be contraindicated for them without other coping skills training such as cognitive restructuring and assertiveness. Meditating too long may impair reality testing. Meditation may also be abused by reducing problematic affect without the meditator's realizing or remedying the antecedents of the problem. A meditator could conceivably learn the skills of letting go of thoughts and goals without also learning to set goals and move toward them.

Heide and Borkovec (1983) treated adults with general tension with one session of counterbalanced PMR and meditation and found about 31% and 54%, respectively, increase in anxiety. This difference may have been due to the way the techniques were presented and/or the subjects' discomfort with meditation's more passive, less occupied nature or its cultic strangeness to them. Recommending such relaxation methods for everyone seems inadvisable without careful individual tailoring and supervision for some.

Future Research and Practice

Several suggestions for future research and practice seem worthwhile. Relaxation methods may not be adequate for stress management in many cases without simultaneous positive shaping of coping skills such as communication training and time management. Jonathon Smith (1977) points out that Western forms of meditation are vastly oversimplified and stripped of their Eastern context of yoga stretching, nutrition, abstinence from drugs, etc. He proposes a more gradual and thorough chaining process in developing such habits.

Both research and practice might examine more closely which relaxation methods work best for which clients and therapists and how they might differentially optimize the placebo common factors. I failed to locate a study I read years ago in which, as I recall, biofeedback worked better for engineers when presented as a sophisticated scientific technology but better for hippies when presented as a guide for meditation. Hafner (1982) and Woolfolk, Lehrer, McCann, and Rodney (1982) provided a sampling of different meditation techniques for their subjects, and I have found this helpful in private practice. The CSM method gives a choice of mantras as well as guidelines for making up one's own. Such tailoring of relaxation methods to individual proclivities seems well-advised.

Different personality types may be attracted by and comply better with different relaxation methods. For example, we found (Fling, Thomas, & Gallaher, 1981) that meditation volunteers were more introverted than extraverted, intuitive than sensing, feeling than thinking, and perceiving than judging on the Myers-Briggs Type Indicator. We are currently analyzing more data along this line from which we would not be surprised to find that those attracted to biofeedback, for example, are more sensing, thinking, and judging than those attracted to meditation. Such study of subject variables could help maximize placebo factors and facilitate differential prescribing of various stress management techniques.

Of course, we still have the tasks of analyzing possible active

and inert components of various relaxation techniques, refining our dependent variables, and studying more systematically the phenomenology of the deeply relaxed states. Whether and how relaxation techniques work to prevent and treat many stress-related mental and physical disorders also remains to be more clearly demonstrated. Meanwhile, I shall continue to use and recommend that others try these methods for themselves on an existential basis, being cautious not to exaggerate claims of their effectiveness on the basis of existing research.

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